Peabody, Daniel (EGLE)

From: Saric, James <saric.james@epa.gov>
Sent: Tuesday, July 14, 2020 2:28 PM
To: Johnson, Shannon D.; Pauquette, Phil R
Cc: Von Wallmenich, Theo/DET; Wood, Nicole; Peabody, Daniel (EGLE); Roberts, Keegan; Draper, Cynthia E; Gustavson, Karl; Dale.Wonn@weyerhaeuser.com; Ruhala, Sydney (EGLE)
Subject: Area 6 Pre-SRI Disapproval
Attachments: A6 Pre SRI WP Disapproval.pdf

Shannon,

Attached is a disapproval letter for the Area 6 Pre-SRI Work Plan. Although EPA has issues with the rationale and future use of the data for MNR, Georgia-Pacific can proceed with sampling as planned in August. Also, all PCB samples collected as part of this effort should be analyzed according to the new PCB SOP that is being developed. This will require samples to be preserved until a new multi-area QAPP is approved by EPA.

Thanks

Jim Saric
Remedial Project Manager
US EPA Region 5, Chicago
(312) 886 - 0992

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

SR-6J
REPLY TO THE ATTENTION OF

July 14, 2020

Mr. Shannon Johnson
Georgia-Pacific LLC
133 Peachtree Street NE
Atlanta, GA 30303

RE: Allied Paper, Inc./Portage Creek/Kalamazoo River Site
Area 6 Pre-SRI Work Plan – Lines of Evidence for Monitored Natural Recovery Disapproval

Dear Mr. Johnson:

The U.S. Environmental Protection Agency (EPA) has completed its review of the draft Area 6 Pre-Supplemental Remedial Investigation (SRI) Work Plan – Lines of Evidence (LOE) for Monitored Natural Recovery (MNR), submitted on May 18, 2020, for the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site. The plan documents the rationale and collection procedures for 32 sediment cores to support an evaluation of MNR LOE in Area 6 of Operable Unit 5.

Although EPA believes the sample locations are adequate and that field collection of the sediment samples should proceed as planned in August, the rationale and use of the data requires clarification within the workplan.

Therefore, EPA disapproves the Area 6 Pre-SRI Work Plan – LOE for MNR pending receipt of adequate responses to the enclosed comments and a revised report. The responses to the enclosed comments and revised report must be submitted within (30) thirty days of receipt of this letter.

Please contact me at (312) 886-0992 if you have any questions regarding this matter.

Sincerely,

James A. Saric
Remedial Project Manager
SFD Remedial Response Branch #1

Enclosure

cc: Dan Peabody, EGLE
Dale Wonn, Weyerhaeuser

US EPA COMMENTS ON THE AREA 6 PRE-SUPPLEMENTAL REMEDIAL INVESTIGATION WORK PLAN - LINES OF EVIDENCE FOR MONITORED NATURAL RECOVERY ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SITE

GENERAL COMMENTS

Commenting Organization: EPA/EGLE **Commenter: Saric**
General Comment #: 1
The Area 6 Pre-SRI MNR sediment samples must be analyzed following the revised PCB standard operating procedure that is currently being developed, which will be memorialized in a revised multi-area QAPP. Therefore, all samples collected should be properly stored for analysis until a revised QAPP is approved by EPA. The work plan must be revised to reflect this change. In addition, revise the text to note what steps will be taken to evaluate if the observed changes (if any) in PCBs concentrations are the result of implementing the new SOP or the result of natural/anthropogenic changes within the river system (e.g., MNR, erosion, etc.), and how the previous recent data sets will be addressed in light of the PCB quantification issues.

Commenting Organization: EGLE **Commenter:**
General Comment #: 2
The document discusses evaluations of sediment data for assessment of MNR. However, there is no discussion of how temporal changes in fish tissue or surface water concentrations will be assessed. Please revise the document to address this deficiency, even if only to reference an intention to continue ongoing long-term monitoring efforts.

Commenting Organization: EPA/EGLE **Commenter: Saric**
General Comment #: 3
The Recent (2018) Upstream and Downstream PCB IPWCs by Interval figures in appendix A-3 and A-4 show decreases in PCB concentrations at all depth intervals when compared to the Historical Upstream and Downstream PCB IPWCs by Interval figures in appendix A-1 and A-2. The work plan provides an estimated sediment accumulation rate for Area 6 of 0.3 to 0.9 inches per year. Based on this range of estimated accumulation rates and assuming the Conceptual Site Model presented is correct, it could be expected that PCB concentrations in the upper sediment (~0-12 inches) may have decreased, however it would not be expected that the PCB concentrations at depth (> 2 feet) would have decreased as shown. Please revise the document to provide a potential cause(s) for this observed decreased. Previously documented concerns regarding a low bias in recent PCB analytical results should also be considered throughout this work plan as it will likely impact evaluation of MNR in Area 6, potentially resulting in inaccurate conclusions.

EGLE also notes the 2018 and historic data were not sectioned in "standard" intervals, so it is unclear why the data is being averaged. Revise the text and figures to discuss and show comparisons of total PCBs in cores for the data that is available. See General Comment #6 for more information.

Commenting Organization: EGLE **Commenter:**
General Comment #: 4
Please revise the document to also include sediment traps to assess the total PCB concentrations on incoming sediments and additional bathymetric analyses to assess sediment bed changes on regular intervals and following natural or anthropogenic disturbances.

Commenting Organization: EGLE **Commenter:**
General Comment #: 5
Please revise the document to discuss the statistical basis behind the number/spatial density of samples to be collected, and the preliminary estimates of the temporal sampling density needed to evaluate MNR within Area 6 in a statistically robust manner.

Commenting Organization: EGLE **Commenter:**
General Comment #: 6
If cores are being sliced at thinner intervals (i.e. 2-inches) it is unclear why the data is then averaged across a 6-inch (or larger) interval. Standardizing intervals may be appropriate for certain evaluations and discussions but there is value in describing results from thinner intervals that is lost when data is averaged. The workplan, report, and future work group presentations should include discussions on the data as it was collected and analyzed. Please revise the document accordingly.

SPECIFIC COMMENTS

Commenting Organization: EPA **Commenter: White**
Section: 1.2 **Page #: 1-4**
Specific Comment #: 1
Last paragraph: "*. . . because materials from upgradient sources contain lower concentrations of PCBs.*" This explanation should also point out that PCB concentrations in sediments from upstream have declined over time as the upgradient PCB sources have been reduced and controlled.

Commenting Organization: EGLE **Commenter:**
Section: 1.2 **Page #: 1-4**
Specific Comment #: 2
The text reads as follows: "Collaborative water quality improvement efforts are underway; stakeholders include city and village wastewater treatment plants, local industry and consultants, the Kalamazoo Environmental Council, Michigan Farm Bureau, Michigan Agricultural Stewardship Association, Michigan Department of Agriculture, Natural Resources Conservation Service, MDEQ, and others." Please revise "MDEQ" to "EGLE".

Commenting Organization: EGLE **Commenter:**
Section: 1.2 **Page #: 1-4**
Specific Comment #: 3
The text reads as follows: "Mechanistically, the deposition and mixing of sediments and watershed soil from upstream areas into near surface sediments in Area 6 results in a decline in PCB concentrations across the bioactive zone in sediment because materials from upgradient sources contain lower concentrations of PCBs." Following on EGLE's above comments, please revise the text to read as follows: ""...in Area 6 may result in a decline in PCB concentrations across the bioactive zone in sediment if the materials from upgradient sources contain lower concentrations of PCBs."

Commenting Organization: EGLE **Commenter:**
Section: 1.3 **Page #: 1-4**
Specific Comment #: 4
The list of field events appears incomplete. At the least, the list of field events should also include LTM and other investigations (e.g. Inlet-Outlet Study) that generated data in Area 6. Please revise the document accordingly.

Commenting Organization: EPA **Commenter: White**
Section: 1.3.1 **Page #: 1-5**
Specific Comment #: 5
Last sentence: "*Depositional areas tend to have higher concentrations than non-depositional areas (Appendix A).*" Recommend deleting or revising this sentence because the maps in Appendix A do not differentiate between depositional and non-depositional areas.

Commenting Organization: EGLE **Commenter:**
Section: 1.3.2 **Page #: 1-5**
Specific Comment #: 6
The text discusses a "Video Condition Survey" and "...the presence or absence of aquatic vegetation and sediment mixing. Please remove this section from the workplan. Presence of aquatic vegetation is not a line of evidence (LOE) for MNR. While it may provide some information regarding sediment stability, subaquatic vegetation assessments do not provide direct measures of changes in contaminant concentration. Additionally, more direct measures of sediment stability (e.g., differential bathymetric analyses) are widely available and used at other contaminated sediment sites.

Also, the "evidence of bioturbation" described is questionable. In the past, these markings have been attributed to carp. EGLE previously provided images of bottom surveys completed in lakes that are devoid of carp but contain these same markings.

Commenting Organization: EGLE **Commenter:**
Section: 1.3.2 **Page #: 1-5**
Specific Comment #: 7
EGLE has multiple concerns regarding the bathymetric/LiDAR surveys. Is there a reason that the bathymetry survey was completed over multiple seasons and using multiple sets of equipment? If this survey is meant serve as a "baseline" as described in the text how would

similar and comparable follow-up surveys be completed? EGLE notes that even the LiDAR data generated in shallow environments has been shown to not match other data. Specifically, when we look at the LiDAR data for the main channel in the former Plainwell impoundment the 2017 bed measured by LiDAR is consistently 3+ feet above the 2014 and 2019 beds. Was the LiDAR data ground-truthed for accuracy? How does Wood know that the LiDAR measurements for Area 6 are reliable? Please revise the document to address these concerns.

Commenting Organization: EGLE **Commenter:**
Section: 1.4 **Page #: 1-6**
Specific Comment #: 8
The text reads as follows: "The purpose of this Pre-SRI WP is to establish or reoccupy sediment core locations for the collection of sediment PCB data to evaluate the potential for MNR." Additionally, Page 1-7 states: "PCB measurements at reoccupied core locations in net depositional subareas are expected to document surface concentration attenuation (or lack thereof) due to cleaner sediment deposition."

This Site has a demonstrated history of small-scale heterogeneities in PCB concentration, and the ability to directly reoccupy a previous subaqueous sediment core location is near impossible (e.g., boat positioning, GPS accuracy, issues with sampling from the water's surface through the water column, etc.). Any evaluation of temporal trends in total PCB concentrations (utilizing accurate PCB concentration data) should be conducted on an aerial basis. This areal extent could be via lake bottom feature, sediment decision management unit (SDU), etc. A point-by-point comparison should not be performed. Furthermore, multiple samples within a single SDU should be used for compositing and to establish that area's "concentration".

Commenting Organization: EPA **Commenter: White**
Section: 1.4 **Page #: 1-6**
Specific Comment #: 9
"The purpose of this data collection effort is to build on trends shown previously (Appendix B) for evaluating the sediment MNR LOEs . . ." The plot presented in Appendix B needs to be explained in more detail. Is the same set of sample locations shown for all four sample events (1993/94, 2000, 2009, and 2018)? The regression relationships may not be valid if different subsets of locations are used for different sampling events.

Commenting Organization: EPA **Commenter: White**
Section: 1.4 **Page #: 1-7**
Specific Comment #: 10
"Ongoing data analyses show that reoccupying at least 24 historical locations in Area 6 would result in 90% confidence in detecting at least a 3% decrease in PCB concentrations . . . "
This analysis should be documented in the work plan as it is used to justify the number of sample locations proposed for the Pre-SRI coring effort. In addition, the power analysis appears to be related to analyzing temporal trends in surface sediment concentrations (0-2 in) whereas the rest of this subsection discusses analysis of vertical PCB concentration trends.

Commenting Organization: EPA **Commenter: White**
Section: 1.4 **Page #: 1-7**
Specific Comment #: 11
The section would benefit from a clearer explanation of the expected trends in sediment PCB concentrations in net depositional areas if MNR is occurring. At each core location, the peak PCB concentration would be found at depth and concentrations would decline from the peak to the surface, reflecting burial over time with relatively cleaner sediment. At reoccupied core locations, the peak PCB concentration is expected to be deeper in the more recent core. In addition, surface sediment PCB concentrations should decline over time as evidenced by a declining PCB concentration trend in the 0-2-inch samples from the same set of reoccupied locations.

Commenting Organization: EPA **Commenter: White**
Section: 1.5 **Page #: 1-8**
Specific Comment #: 12
Conceptual Site Model: "*Vertical layering, starting at the bottom, consists of natural sediments, sediments containing PCBs, a mixed layer of recent depositional material and sediment containing PCBs...*" As written, this description implies that the recent depositional material does not contain PCBs, which is not the case. Please revise.

Commenting Organization: EPA **Commenter: White**
Section: 1.5 **Page #: 1-9**
Specific Comment #: 13
Step 2 Decision Problems, second bullet: Replace "clean" with "relatively cleaner." PCB concentrations in newly-deposited sediment are expected to be lower than historical PCB concentrations, but they may still be above the cleanup goal.

Commenting Organization: EPA **Commenter: White**
Section: 1.5 **Page #: 1-9**
Specific Comment #: 14
Step 2 Estimation Problems: Consider deleting the third bullet ("*Where in Area 6 are PCBs found consistently in sediments?*"), which is not clearly linked to evaluating MNR potential. Clarify whether the data be used to estimate the rate of decline in surface sediment PCB concentrations.

Commenting Organization: EPA **Commenter: White**
Section: 1.5 **Page #: 1-11**
Specific Comment #: 15
Step 5 Develop the Analytic Approach: The data analysis procedures described in this step are vague. Specifically, how will the data be used to assess whether MNR is occurring?

Commenting Organization: EPA **Commenter: White**
Section: 1.5 **Page #: 1-11**
Specific Comment #: 16
Step 7 Develop the Plan for Obtaining Data: This step should reference Section 2.1, which provides the rationale for the sampling design (number and locations of proposed sediment cores).

Commenting Organization: EGLE **Commenter:**
Section: 1.5 **Page #: 1-8**
Specific Comment #: 17
The Conceptual Site Model should incorporate bank erosion as a potential ongoing source of PCBs. Please revise.

Commenting Organization: EGLE **Commenter:**
Section: 1.5 **Page #: 1-9**
Specific Comment #: 18
The first bullet point under Decision Problems states "Do the PCB concentrations in sediment support MNR in Area 6 in combination with other remedial technologies?" How will "in combination with other remedial technologies" be assessed? What other remedial technologies are being considered? Please expand on this topic in the work plan.

Commenting Organization: EGLE **Commenter:**
Section: 1.5 **Page #: 1-9**
Specific Comment #: 19
The Conceptual Site Model states that "the effects of ongoing bioturbation and other natural and anthropogenic sediment resuspension may present limitations to the natural recovery of the lake and burial with cleaner sediment". However, bioturbation and resuspension are not included in the Decision Problems as presented. Please incorporate bioturbation and resuspension in the Decision Problems. For example, is evidence of bioturbation and resuspension observed on the lake bottom? How will impacts from bioturbation and resuspension impact the evaluation of MNR?

Commenting Organization: EPA/EGLE **Commenter:**
Section: 1.5 **Page #: 1-10**
Specific Comment #: 20
Please revise the text to note that Wood will utilize the final, revised PCB SOP currently under development with EPA assistance for PCB quantification.

Commenting Organization: EPA **Commenter: White**
Section: 2.0 **Page #: 2-1**
Specific Comment #: 21
"*The distance between cores used to designate a core location as a reoccupied core location may change . .* ." Why would it change? The sampling plan should specify the maximum offset allowed for a core to be considered collocated.

Commenting Organization: EPA **Commenter: White**
Section: 2.0 **Page #: 2-1**
Specific Comment #: 22
First paragraph: What is the difference between sample location categories #2 and #3?

Commenting Organization: EGLE **Commenter:**
Section: 2.0 **Page #: 2-1**
Specific Comment #: 23
The work plan states that a reoccupied sediment core location will be collected within approximately 15 feet of another historical sampling location. How does the small-scale (i.e. local) spatial heterogeneity of PCBs in sediment impact the evaluation of MNR? Please address this issue in the work plan.

Commenting Organization: EGLE **Commenter:**
Section: 3.1.3 **Page #: 3-2**
Specific Comment #: 24
The text reads as follows: "Sediment samples will also be analyzed for grain size in standard intervals (0 to 6 in, 6 to 12 in, 12 to 24 in, and every 1-ft interval thereafter to the bottom of the core)." Please revise the document to note that grain size analyses will be conducted on the same sample intervals for which PCB analyses are conducted. Otherwise, it may be harder to understand the context of any anomalous PCB results.

Commenting Organization: EPA **Commenter: White**
Section: 4.2 **Page #: 4-1**
Specific Comment #: 25
First paragraph: What is the difference between sample location categories #2 and #3?